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UNITED STATES DEPARTMENT OF AGRICULTURE
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Number 14

BIBLIOGRAPHICAL CONTRIBUTIONS

May, 1927

LIST OF THE PUBLICATIONS ON SOILS
issued by the U. S. Department of Agriculture
1844-1926

Compiled by
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and
Charlotte Trolinger, Cataloguer

Washington, D. C.

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PREFACE

This list of publications of the United States Department of Agriculture on soils was compiled primarily for use at the First International Congress of Soil Science, to be held in Washington, D. C., from June 13 to June 22, 1927, inclusive.

The publications issued before 1894, the date of the establishment of the Division of Agricultural Soils, which later developed into the Bureau of Soils, are all out of print and are no longer available for distribution by the Department. Roughly speaking, these comprise the publications noted in the first six series of the following list. The soil publications of the Bureau of Chemistry, the Office of Experiment Stations, the Division of Statistics, and the Weather Bureau which were issued previous to 1914, are also for the most part out of print, as well as the publications of the Bureau of Soils issued in the Bureau's series previous to 1914. In other words, practically only the publications issued in the following series are now available for distribution, namely, Farmers' Bulletins, Department Bulletins, Department Circulars, Journal of Agricultural Research, Yearbook, and the Advance Sheets of the Field Operations. Even many of these are also out of print.

Some of the publications which are no longer available for distribution in the Department can be obtained by purchase from the Superintendent of Documents, Government Printing Office. A list of the publications relating to "Soils and Fertilizers" for sale by the Superintendent of Documents, Government Printing Office, is given in Price List 46 of that office. A large proportion of the earlier publications can be obtained only from second-hand dealers or from the duplicate files of libraries.

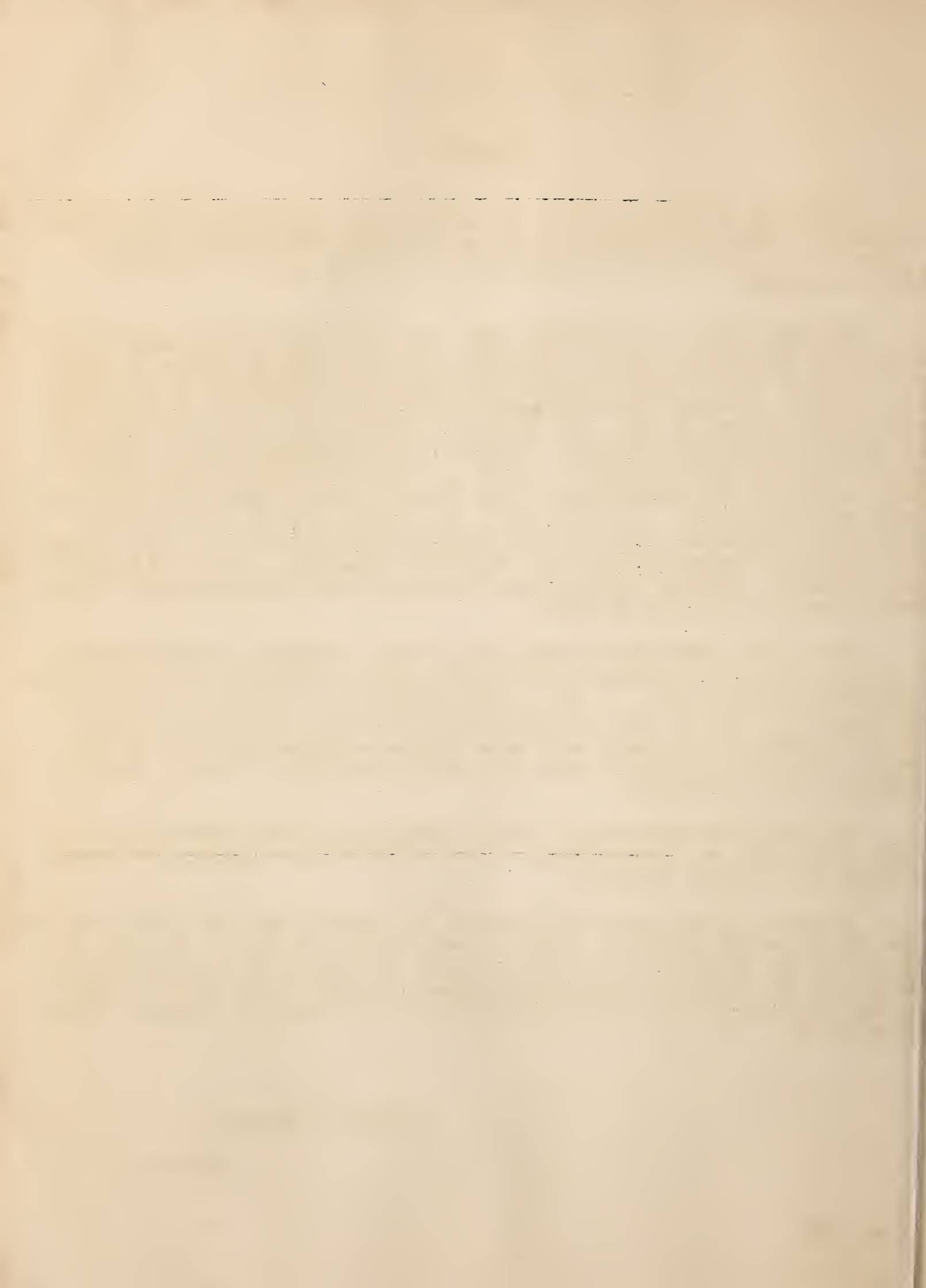
In spite of the fact that so small a proportion of the publications included in the list are now available, it was thought that a complete list would be useful for reference purposes.

Printed catalogue cards are available for purchase from the Library of Congress for all of the bulletins, circulars and reports included in the list, as well as for the articles in the annual reports, the Journal of Agricultural Research, and the Yearbook. Further information in regard to the printed cards is contained in Bulletin 14 of the Card Division of the Library of Congress, Washington, D. C.

Claribel R. Barnett,

Librarian.

May 14, 1927.



UNITED STATES DEPARTMENT OF AGRICULTURE

Annual Reports

Until 1862 the Agricultural Reports were issued by the Agricultural Division of the Patent Office. In 1862 the Department of Agriculture was established as an independent department. In 1888 it became an executive branch of the government with a cabinet officer at its head.

(Patent Office)

- 1844, p.335-346 Extracts from Thaer's Principles of agriculture. On soils, etc.
- 1844, p.368-370 Increasing the fertility of land by electricity. (From the London Spectator, October 26)
- 1844, p.377-380 Guano and compost manures. C. T. Jackson.
- 1845, p.1047-1049 Prepared manures and their effect upon crops. R. L. Pell.
- 1849, p.302-303 Application of lime. Edward Kohler.
- 1849, p.400-402 Improvement of worn-out lands by the use of peas and clover. H. Burgwyn.
- 1849, p.488-490 Analysis of prairie soil. J. V. Z. Blaney.
- 1850, p.25-81 The study of soils. Daniel Lee.
- 1850, p.118-120 The preparation and use of manures. Daniel Lee.
- 1851, p.7-10 The mineral manure theory. J. P. Norton.
- 1851, p.10-14 Experiments with Peruvian guano and barn compost. Josiah Keene.
- 1852, p.49-56 Practical value of the analysis of soils. J. C. Booth.
- 1852, p.373-389 Southern agricultural exhaustion and its remedy. Edmund Ruffin.
- 1852, p.390-413 The agricultural value of phosphate of lime. Joseph Harris.
- 1854, p.90-102 Guano. Its history, sources, qualities and application. D. J. Browne.
- 1854, p.102-108 Remarks on fertilizers, or saline manures. C. T. Jackson.
- 1854, p.119-121 Rotation of crops. D. J. Browne.
- 1856, p.182-198 On the value and uses of swamp muck. Simon Brown.
- 1856, p.201-246 Calcareous manures. D. J. Browne.
- 1856, p.492-495 Terrestrial or underground climate. D. J. Browne.

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Annual Reports, Patent Office (cont'd)

- 1857, p.296-304 Chemical analyses of cotton soils--analyses of the ash of the cotton plant. C. T. Jackson.
- 1859, p.136-178 Fertilizers. T. G. Clemson.
- 1860, p.34-79 Fertilizers. T. G. Clemson.
- 1861, p.206-209 Worn-out lands of New Jersey. Charles Stokes.
- 1861, p.343-358 Salt marshes, the mode of reclaiming them and their value. William Clift.
- 1861, p.558-584 Something of the philosophy and chemistry of manures.

(Department of Agriculture)

- 1864, p.299-328 Green manuring and manures. J. F. Wolfinger.
- 1865, p.368-395 Manures and their application. Simon Brown and Joseph Reynolds.
- 1867, p.184-186 Experiments in liquid manuring. W. S. Rand.
- 1868, p.389-395 The marl region of Virginia.
- 1870, p.428-438 The present theory and practice of mineral manures.
- 1870, p.600-611 Reclamation of marsh lands. J. J. Collins.
- 1878, p.476-507 The agriculture and soils of California. E. W. Hilgard.

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Miscellaneous Special Reports

- 2, p. 76-82 Concerning Mr. Lawes' views of fertility. M. P. Scott. 1883.
- 2, p.207-221 Improvement of worn-out lands. J. R. Page. 1883.
- 3 Mississippi: its climate, soil, productions, and agricultural capabilities. A. B. Hurt. 89 p. 1883.
- 4 The climate, soil, physical resources, and agricultural capabilities of the state of Maine, with special reference to the occupation of its new lands. S. L. Boardman. 60 p, 1884.
- 7 Tide marshes of the United States, by D. M. Nesbit; with contributions from U. S. Coast survey, S. L. Boardman, Eldridge Morse, and others. D. M. Nesbit. 259 p. 1885.

Monthly Reports

- 1874, p.46-48 Soil analysis. William McMurtrie.

Reports

No. 1-58, 1862-1898, were issued without numbers. A list of titles and of numbers assigned later to these miscellaneous publications was printed on cover pages 3 and 4 of no. 59 which was the first to bear a number.

- [18] Fertilizers. Cooperative experimenting as a means of studying the effects of fertilizers and the feeding capacities of plants. W. O. Atwater. 33 p. 1882.
- [20] Report on the climatic and agricultural features and the agricultural practice and needs of the arid regions and of the Pacific slope, with notes on Arizona and New Mexico. E. W. Hilgard, T. C. Jones, and R. W. Furnas. 182 p. 1882.
- [21] Florida: its climate, soil, productions, and agricultural capabilities. G. B. Carse and J. H. Foss. 98 p. 1882.
- [22], p.27-35 Co-operative experimenting as a means of studying the effects of fertilizers and the feeding capacities of plants. W. O. Atwater. 1882.
- [31] Results of field experiments with various fertilizers. W. O. Atwater. 183 p. 1883.
- [35] The soils and products of southwestern Louisiana, including the parishes of Saint Landry, La Fayette, Vermilion, Saint Martin's, Iberia, and Saint Mary's. E. E. Rapley. 40 p. 1884.

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Reports (cont'd)

- 64 Field operations of the Bureau of Soils, 1899. Milton Whitney; with accompanying papers by T. H. Means, F. D. Gardner, C. W. Dorsey, F. K. Cameron, L. J. Briggs. 198 p. 1900.
This is the first volume of the Field Operations. Later volumes are noted in the list of publications of the Bureau of Soils.
- 70 Exhaustion and abandonment of soils. Testimony of Milton Whitney before Industrial Commission. 48 p. 1901.
- 71 Some mutual relations between alkali soils and vegetation. T. H. Kearney and F. K. Cameron. 78 p. 1902.
- 95 The agricultural possibilities of the Canal Zone. Pt. I. Reconnaissance soil survey. H. H. Bennett. Pt. II. The outlook for agriculture. W. A. Taylor. 49 p. 1912.
- 96 Soils of the prairie regions of Alabama and Mississippi and their use for alfalfa. Pt. I. Houston clay and associated soils. H. H. Bennett. Pt. II. Alfalfa on the Houston clay; its culture and management. M. A. Crosby. 48 p. 1911.
- 100 Potash from kelp. F. K. Cameron. 122 p. 1915.

Special Reports

- 47 Climate, soil and agricultural capabilities of South Carolina and Georgia. 65 p. 1882.
- 62 Observations on the soils and products of Florida. William Saunders. 30 p. 1883.

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Department Bulletins

In July, 1913, the bureau series of bulletins and circulars were discontinued and a new series of Department Bulletins was established. In this is published, as contributions from the various bureaus, divisions and offices, the technical and semi-technical matter that up to July, 1913, had been published in the various separate bureau series. They are intended chiefly for scientists and subject-matter specialists. In most cases a comparatively small edition is printed and only a limited number is available for free distribution.

- 2 The fish-scrap fertilizer industry of the Atlantic coast. J. W. Turrentine. 50 p. 1913.
- 6 The agricultural utilization of acid lands by means of acid-tolerant crops. F. V. Coville. 13 p. 1913.
- 18 A report on the phosphate fields of South Carolina. W. H. Waggaman. 12 p. 1913.
- 37 Nitrogenous fertilizers obtainable in the United States. J. W. Turrentine. 12 p. 1913.
- 42 The action of manganese in soils. J. J. Skinner, M. X. Sullivan, J. H. Beattie, F. R. Reid, and H. Winckelmann. 32 p. 1914.
- 46 A descriptive catalogue of the soils of Virginia so far identified in the soil survey. 21 p. 1913.
- 54 The topographic features of the desert basins of the United States with reference to the possible occurrence of potash. E. E. Free. 65 p. 1914.
- 61 Potash salts and other salines in the Great Basin region. G. J. Young. 96 p. 1914.
- 97 Identification of commercial fertilizer materials. W. H. Fry. 13 p. 1914.
- 108 Harmful effects of aldehydes in soils. Oswald Schreiner and J. J. Skinner. 26 p. 1914.
- 122 The inorganic composition of some important American soils. W. O. Robinson. 27 p. 1914.
- 135 Experiments in the production of crops on alkali land on the Huntley reclamation project, Montana. Dan Hansen. 19 p. 1914.
- 140 Soils of Massachusetts and Connecticut with special reference to apples and peaches. H. J. Wilder. 73 p. 1915.
- 141 The Clyde series of soils. J. A. Bonsteel. 60 p. 1914.

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Department Bulletins (cont'd)

142. The Miami series of soils. J. A. Bonsteel. 59 p. 1914.
143. Production and fertilizer value of citric-soluble phosphoric acid and potash. W. H. Waggaman. 12 p. 1914.
144. Manufacture of acid phosphate. W. H. Waggaman. 28 p. 1914.
149. The use of radioactive substances as fertilizers. W. H. Ross. 14 p. 1914.
150. Utilization of the fish waste of the Pacific coast for the manufacture of fertilizer. J. W. Turrentine. 71 p. 1915.
151. Experiments in crop production on fallow land at San Antonio. C. R. Letteer. 10 p. 1914.
157. Tillage and rotation experiments at Nephi, Utah. P. V. Cardon. 45 p. 1915.
158. The nitrogen of processed fertilizers. E. C. Lathrop. 24 p. 1914.
159. Soils of the sassafras series. J. A. Bonsteel. 52 p. 1915.
164. Field test with a toxic soil constituent: vanillin. J. J. Skinner. 9 p. 1915.
180. Soil erosion in the South. R.O.E. Davis. 23 p. 1915.
253. The effect of different times of plowing small-grain stubble in eastern Colorado. O. J. Grace. 15 p. 1915.
268. Crop production in the Great Plains area; relation of cultural methods to yields. E. C. Chilcott, J. S. Cole, and W. W. Burr. 28 p. 1915.
283. The production of sulphuric acid and a proposed new method of manufacture. W. H. Waggaman. 39 p. 1915.
312. Phosphate rock and methods proposed for its utilization as a fertilizer. W. H. Waggaman. 37 p. 1915.
355. Extension course in soils for self-instructed classes in movable schools of agriculture. A. R. Whitson and H. B. Hendrick. 92 p. 1916.
415. The recovery of potash from alunite. W. H. Waggaman and J. A. Cullen. 14 p. 1916.
441. The action of manganese under acid and neutral soil conditions. J. J. Skinner and F. R. Reid. 12 p. 1916.
447. Water penetration in the gumbo soils of the Belle Fourche reclamation project. O. R. Mathews. 12 p. 1916.

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Department Bulletins (cont'd)

- 462 Irrigation in Florida. F. W. Stanley. 62 p. 1917.
- 499 The mulched-basin system of irrigated citrus culture and its bearing on the control of mottle-leaf. L. J. Briggs, C. A. Jensen, and J. W. McLane. 31 p. 1917.
- 512 Prevention of the erosion of farm lands by terracing. C. E. Ramser. 40 p. 1917.
- 551 Variation in the chemical composition of soils. W. O. Robinson, L. A. Steinkoenig, and W. H. Fry. 16 p. 1917.
- 572 Recovery of potash as a by-product in the cement industry. W. H. Ross, A. R. Merz, and C. R. Wagner. 23 p. 1917.
- 600 The relation of some of the rarer elements in soils and plants. W. O. Robinson, L. A. Steinkoenig, and C. F. Miller. 27 p. 1917.
- 675 Range preservation and its relation to erosion control on western grazing lands. A. W. Sampson and L. H. Weyl. 35 p. 1918.
- 677 Soils of southern New Jersey and their uses. J. A. Bonsteel. 78 p. 1918.
- 699 Analysis of experimental work with ground raw rock phosphate as a fertilizer. W. H. Waggaman, C. R. Wagner, and R. F. Gardiner. 119 p. 1918.
- 756 Pecan rosette in relation to soil deficiencies. S. M. McMurran. 11 p. 1919.
- 798 A survey of the fertilizer industry. E. A. Goldenweiser. 29 p. 1919.
- 802 Quality and value of important types of peat material. A classification of peat based upon its botanical composition and physical and chemical characteristics. A. P. Dachnowski, 40 p. 1919.
- 818 Soil disinfection with hot water to control the root-knot nematode and parasitic soil fungi. L. P. Byars and W. W. Gilbert. 14 p. 1920.
- 835 Capillary movement of soil moisture. W. W. McLaughlin. 70 p. 1920.
- 991 Crop rotation and cultural methods at Edgeley, N. Dak. J. S. Cole. 24 p. 1921.
- 998 Effect of borax in fertilizer on the growth and yield of potatoes. B. E. Brown. 8 p. 1922.

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Department Bulletins (cont'd)

- 1004 Use of water by spring wheat on the Great Plains. J. S. Cole and O. R. Mathews. 34 p. 1923.
- 1005 Soils of eastern Virginia and their uses for truck crop production. J. A. Bonsteel. 70 p. 1922.
- 1108 Tables for the microscopic identification of inorganic salts. W. H. Fry. 22 p. 1922.
- 1122 Absorption of colloidal and noncolloidal soil constituents. M. S. Anderson, W. H. Fry, P. L. Gile, H. E. Middleton, and W. O. Robinson. 20 p. 1922.
- 1126 The effect of borax on the growth and yield of crops. J. J. Skinner, B. E. Brown, and F. R. Reid. 31 p. 1923.
- 1139 Storage water in soil and its utilization by spring wheat. O. R. Mathews. 28 p. 1923.
- 1179 Investigations of the manufacture of phosphoric acid by the volatilization process. W. H. Waggaman, H. W. Easterwood, and T. B. Turley. 55 p. 1923.
- 1180 Field experiments with atmospheric-nitrogen fertilizers. F. E. Allison, J. M. Braham, and J. E. McMurtrey, jr. 44 p. 1924.
- 1191 Potash from kelp: early development and growth of the giant kelp, *Macrocystis pyrifera*. R. P. Brandt. 40 p. 1923.
- 1193 Estimation of colloidal material in soils by adsorption. P. L. Gile, H. E. Middleton, W. O. Robinson, W. H. Fry, and M. S. Anderson. 42 p. 1924.
- 1221 The capillary distribution of moisture in soil columns of small cross section. W. W. McLaughlin. 23 p. 1924.
- 1226 The recovery of potash as a by-product in the blast-furnace industry. A. R. Merz, and W. H. Ross. 22 p. 1924.
- 1280 The computation of fertilizer mixtures from concentrated materials. A. R. Merz and W. H. Ross. 16 p. 1924.
- 1293 Tillage and rotation experiments at Dickinson, Hettinger, and Williston, N. Dak. Leroy Moomaw. 23 p. 1925.
- 1304 Crop rotation and cultural methods at the Akron (Colorado) field station in the 15-year period from 1909 to 1923, inclusive. J. F. Brandon. 28 p. 1925.

Department Bulletins (cont'd.)

- 1310 Experiments with fallow in north-central Montana. G. W. Morgan.
16 p. 1925.
- 1311 The chemical composition of soil colloids. W. O. Robinson and R. S. Holmes. 42 p. 1924.
- 1314 A bibliography relating to soil alkalies. Comp. with special reference to the deleterious action of soil alkalies and various other chemical agents on cement and concrete. F. V. King, Guy Ervin, O. L. Evans, 40 p. 1925.
- 1377 A study of the value of crop rotation in relation to soil productivity. W. W. Weir. 68 p. 1926.
- 1378 Relation of soil conditions and orchard management to the rosette of pecan trees. J. J. Skinner and J. B. Demaree. 16 p. 1926.
- 1413 Cocoa by-products and their utilization as fertilizer materials. G. P. Walton, and R. F. Gardiner. 44 p. 1926.
- 1418 Fertilizer experiments with alfalfa conducted at the United States Yuma field station, Bard, Calif., 1919 to 1925. H. L. Westover, and E. G. Noble. 11 p. 1926.
- 1419 Factors and problems in the selection of peat lands for different uses. A. P. Dachnowski. 24 p. 1926.
- 1452 Properties of the colloidal soil material. M. S. Anderson and S. Mattson. 47 p. 1926.

Department Circulars

- 61 Sources of American Potash. R. O. E. Davis. 7 p. 1919.
- 84 Crop injury by borax in fertilizers. Oswald Schreiner, B. E. Brown, J. J. Skinner and M. Shapovalov. 35 p. 1920.
- 252 Preparation of peat composts. A. P. Dachnowski. 12 p. 1922.

Office of the Secretary Circulars

- 22 Report on statements of Dr. Cyril G. Hopkins relative to Bureau of soils. 12 p. 1907.
- 38 Conservation of the soil. W. H. Taft. 8 p. 1911.
- 57 The influence of relative area in intertilled and other classes of crops on crop yield. D. A. Brodie. 8 p. 1916.

UNITED STATES DEPARTMENT OF AGRICULTURE

Farmers' Bulletins

- 16 Leguminous plants for green manuring and for feeding. E. W. Allen.
24 p. 1894
- 20 Washed soils: how to prevent and reclaim them. 22 p. 1894.
- 21 Barnyard manure. W. H. Beal. 32 p. 1894.
- 44 Commercial fertilizers: composition and use. E. B. Voorhees. 24 p.
1896.
_____ Rev. ed. 37 p. 1906.
- 48 The manuring of cotton. H. C. White. (Condensed from an article in
Bulletin no. 33, Office of Experiment Stations) 16 p. 1897.
- 56 Experiment station work I. p. 15-16. The harmful effects on soils of
the continued use of muriate of potash. 1897.
- 65 Experiment station work II. p. 19-21. Nitrogin, a germ fertilizer for
leguminous plants. 1898.
_____ p. 21-24. Recent investigations on lime as a fertilizer.
1898.
- 73 Experiment station work IV. p. 4-5. Loss of soil fertility in drain-
age water. 1898.
- 77 The liming of soils. H. J. Wheeler. 19 p. 1898.
_____ Rev. ed. 19 p. 1899.
_____ [3d rev. ed.] 23 p. 1905.
- 78 Experiment station work V. p. 5-7. The importance of maintaining a
supply of humus in the soil. 1898.
_____ p. 7-9. Swamp, marsh, or muck soils. 1898.
- 83 Tobacco soils. Milton Whitney. 23 p. 1898.
- 87 Experiment station work VIII. p. 5-9. Conserving and economizing the
moisture of the soil. 1899.
_____ p. 9-12. Influence of different systems of farming on
the fertility of the soil. 1899.
- 88 Alkali lands. Milton Whitney and T. H. Means. 23 p. 1899.
- 97 Experiment station work X. p. 8-9. Influence of alkali on the ger-
mination and growth of plants. 1899.

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Farmers' Bulletins (cont'd)

- 103 Experiment station work XI. p. 5-6. A danger from excessive irrigation and the remedy. 1899.
- 114 Experiment station work XIV. p. 5-6. Influence of salt and similar substances on soil moisture. 1900.
- 124 Experiment station work XVII. p. 7-10. Soil inoculation for leguminous plants. 1901.
_____ p. 10-12. Treatment of sandy soils. 1901.
- 133 Experiment station work XVIII. p. 6. Alfalfa as a fertilizer. 1901.
_____ p. 6-7. Effect of lime on different crops on acid soils. 1901.
- 144 Experiment station work, XIX. p. 5-6. Maintenance of soil fertility. 1901.
- 149 Experiment station work XX. p. 5. The value of muck or peat. 1902.
_____ p. 16. Soils for strawberries. 1902.
- 186 Experiment station work XXIII. p. 8-11. Sterilizing greenhouse soils. 1904.
- 187 Drainage of farm lands. C. G. Elliott. 1904.
- 202 Experiment station work XXVI. p. 5-8. Reclamation of flood-damaged lands. 1904.
- 214 Beneficial bacteria for leguminous crops. G. T. Moore and T. R. Robinson. 48 p. 1905.
- 237 Experiment station work XXXII. p. 5-7. Lime and clover. 1905.
- 240 Inoculation of legumes. K. F. Kellerman and T. R. Robinson. 7 p. 1905.
- 245 Renovation of worn-out soils. W. J. Spillman. 16 p. 1906.
- 257 Soil fertility. An address delivered before the Rich Neck farmers' club, of Queen Anne County, Maryland. Milton Whitney. 39 p. 1906.
- 259 Experiment station work XXXV. p. 9-10. Soil sterilization. 1906.
- 262 Experiment station work XXXVI. p. 15-18. Dry farming. 1906.
- 266 Management of soils to conserve moisture, with special reference to semiarid conditions. G. H. Failyer. 30 p. 1906.

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Farmers' Bulletins (cont'd)

- 267 Experiment station work XXXVII. p. 14-17. Sugar beets on alkali soils. 1906.
- 278 Leguminous crops for green manuring. C. V. Fiper. 27 p. 1907.
- 281 Experiment station work XL. p. 8-10. Fertilizing value of the sediment in irrigation water. 1907.
- 296 Experiment station work XLI. p. 6. Availability of phosphates in relation to soil acidity. 1907.
_____ p. 11-13. Sterilization of soils for the prevention of diseases of plants. 1907.
- 315 Progress in legume inoculation. K. F. Kellerman and T. R. Robinson. 20 p. 1908.
- 320 Experiment station work XLVI. p. 9-12. Reclamation of salt marshes. 1908.
- 323 Clover farming on the sandy jack-pine lands of the north. C. B. Smith. 1908.
- 329 Experiment station work XLVII. p. 6-10. Improvement of sandy soils by growing forage crops. 1908.
_____ p. 10-15. Dry farming. 1908.
- 342 Experiment station work XLIX. p. 5-10. Conservation of soil resources. 1909.
- 366 Experiment station work LII. p. 5-6. Treatment of muck soils. 1909.
- 374 Experiment station work LIII. p. 5-7. Inoculation and lime for alfalfa. 1909.
- 388 Experiment station work LVI. p. 6-12. Principles of dry farming. 1910.
- 398 Farm practice in the use of commercial fertilizers in the south Atlantic states. J. C. Beavers. 24 p. 1910.
- 406 Soil conservation. W. J. Spillman. 15 p. 1910.
- 419 Experiment station work LIX. p. 5-10. Tillage versus sod mulch in apple orchards. 1910.
- 421 The control of blowing soils. E. E. Free and J. M. Westgate. 23 p. 1910.

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Farmers' Bulletins (cont'd)

- 446 The choice of crops for alkali land. T. H. Kearney. 32 p. 1911.
- 465 Experiment station work LXV. p. 7-9. Management of marsh soils. 1911.
- 494 Lawn soils and lawns. Oswald Schreiner, J. J. Skinner, L. C. Corbett, and F. L. Mulford 48 p. 1912.
- 504 Experiment station work LXX. p. 5-6. Improvement of sandy soils; growth of forage crops. 1912.
- 522 Experiment station work LXXIII. p. 5-7. Importance of draining wet soils. 1913.
- 716 Management of sandy-land farms in northern Indiana and southern Michigan. J. A. Drake. 29 p. 1916.
- 761 Management of muck-land farms in northern Indiana and southern Michigan. H. R. Smalley. 28 p. 1918.
- 921 The principles of liming of soils. E. C. Shorey. 30 p. 1918.
- 924 A simple way to increase crop yields. Methods followed by farmers of the coastal plain section of the central Atlantic states in building up soil fertility. H. A. Miller. 24 p. 1918.
- 978 Handling barnyard manure in eastern Pennsylvania. D. A. Brodie. 24 p. 1918.
- 996 Steam sterilization of seed beds for tobacco and other crops. E. G. Beinhart. 15 p. 1918.
- 997 Terracing farm lands. C. E. Ramser. 40 p. 1918.
- _____ Reprint, 36 p. 1920.
- 1047 Dry farming for better wheat yields. The Columbia and Snake River basins. Byron Hunter. 24 p. 1919.
- 1234 Gullies--how to control and reclaim them. C. E. Ramser. 44 p. 1922.
- 1250 Green manuring. C. V. Piper and A. J. Pieters. 45 p. 1922.
- 1386 Terracing farm lands. C. E. Ramser. 22 p. 1924.
- 1475 Soil productivity as affected by crop rotation. W. W. Weir. 22 p. 1926.
- 1496 Inoculation of legumes and nonlegumes with nitrogen-fixing and other bacteria. F. Löhnis and L. T. Leonard. 28 p. 1926.

UNITED STATES DEPARTMENT OF AGRICULTURE

Journal of Agricultural Research

The Journal of Agricultural Research was established in October, 1913. It is a semi-monthly publication containing articles on technical agricultural research carried on by the United States Department of Agriculture or the state experiment stations, or both cooperatively. It is of primary interest to agricultural scientists and advanced students. The contributors are members of the scientific staff of the Department and scientific workers of the state agricultural experiment stations. Free distribution of the Journal is limited to certain libraries and to institutions or departments doing research work.

Each article in the Journal is reprinted as a "separate". These reprints or "separates" are distributed free to those desiring them as long as the limited supply lasts. Following is a list of the articles relating to soils.

- v. 1, no. 3 Selective adsorption of soils. E. G. Parker. 1913. (H-1)
p. 179-188
- v. 1, no. 4 Environmental influences on the physical and chemical character-
p. 275-291 istics of wheat. J. A. McClerc and P. A. Yoder. 1914. (E-1)
- v. 1, no. 5 The presence of some benzene derivatives in soils. E. C.
p. 357-363 Shorey. 1914. (H-2)
- v. 1, no. 5 Indicator significance of vegetation in Tooele Valley,
p. 365-417 Utah. T. H. Kearney, L. J. Briggs, H. L. Shantz,
J. W. McLane, and R. L. Piemeisel. 1914. (G-12)
- v. 2, no. 2 Relation of bacterial transformations of soil nitrogen
p. 101-113 to nutrition of citrous plants. K. F. Kellerman and R. C.
Wright. 1914. (G-20)
- v. 3, no. 1 Decomposition of soil carbonates. W. H. MacIntire. 1914.
p. 79-80 (Tenn.-1)
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p. 569-575 Relation of certain soil factors to the infection of oats by loose smut. L. K. Bartholomew and E. S. Jones. 1923. (G-301)
- v. 24, no. 7
p. 577-591 Influence of temperature, moisture, and oxygen on spore germination of *Ustilago avenae*. E. S. Jones. 1923. (G-302)
- v. 24, no. 7
p. 621-640 Influence of some nitrogenous fertilizers on the development of chlorosis in rice. L. G. Willis and J. O. Carrero. 1923. (B-18)
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p. 759-767 Influence of the hydrogen-ion concentration on the growth and fixation of nitrogen by cultures of azotobacter. P. L. Gainey and H. W. Batchelor. 1923. (Kans.-35)
- v. 24, no. 9
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- v. 24, no. 9
p. 801-814 Growth and composition of orange trees in sand and soil cultures. H. S. Reed, and A. R. C. Haas. 1923. (Calif.-35)
- v. 24, no. 10
p. 879-883 The microscopic estimation of colloids in soil separates. W. H. Fry. 1923. (H-7)

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- v. 24, no. 11
p. 907-938
Influence of the absolute reaction of a soil upon its azotobacter flora and nitrogen fixing ability. P. L. Gainey. 1923. (Kans.-36)
- v. 25, no. 3
p. 133-140
Oxygen-supplying power of the soil as indicated by color changes in alkaline pyrogallol solution. L. M. Hutchins and B. E. Livingston. 1923. (G-319)
- v. 25, no. 4
p. 171-194
Efficiencies of phosphatic fertilizers as affected by liming and by the length of time the phosphates remained in Porto Rican soils. P. L. Gile and J. O. Carrero. 1923. (B-19)
- v. 25, no. 11
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- v. 23, no. 1
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Action of sodium nitrite in the soil. R. H. Robinson. 1923. (Oreg.-9)
- v. 26, no. 1
p. 11-13
The auxotaxic curve as a means of classifying soils and studying their colloidal properties. A. E. Vinson and C. N. Catlin. 1923. (Ariz.-1)
- v. 26, no. 3
p. 83-123
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- v. 26, no. 5
p. 195-218
Influence of soil temperature and moisture on infection of wheat seedlings by *Helminthosporium sativum*. H. H. McKinney. 1923. (G-333)
- v. 27, no. 2
p. 79-90
Adjusting yields to their regression on a moving average, as a means of correcting for soil heterogeneity. F. D. Richey. 1924. (G-350)
- v. 27, no. 6
p. 341-380
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- v. 27, no. 9
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The movement of water in irrigated soils. C. S. Scofield. 1924. (G-374)
- v. 27, no. 10
p. 717-723
Effect of nitrate applications upon the hydrocyanic-acid content of sorghum. R. M. Pinckney. 1924. (Minn.-49)
- v. 27, no. 12
p. 893-924
The osmotic concentration, specific electrical conductivity, and chlorid content of the tissue fluids of the indicator plants of Tooele Valley, Utah. J. A. Harris, R. A. Gortner, W. F. Hoffman, J. V. Lawrence, and A. T. Valentine. 1924. (G-410)

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- v. 28, no. 1
p. 37-69 Chemical and biological studies with cyanamid and some of its transformation products. K. D. Jacob, F. E. Allison, and J. M. Brahan. 1924. (R-1)
- v. 28, no. 3
p. 277-284 Some relations between the growth and composition of young orange trees and the concentration of the nutrient solution employed. H. S. Reed, and A.R.C. Haas. 1924. (Calif.-37)
- v. 28, no. 4
p. 387-393 Relation of the molecular proportions in the nutrient solution to the growth of wheat. M. C. Sewell. 1924. (Kans.-41)
- v. 28, no. 6
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- v. 28, no. 6
p. 549-562 Relation of soil temperature and soil moisture to infection by Plasmodiophora brassicae. John Monteith. 1924. (G-425)
- v. 28, no. 8
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- v. 28, no. 9
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- v. 28, no. 9
p. 971-976 Greenhouse experiments with atmospheric nitrogen fertilizers and related compounds. F. E. Allison, E. B. Vliet, J. J. Skinner, and F. R. Reid. 1924. (R-5)
- v. 28, no. 11
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p. 95-96 The effect of bacterial numbers on the nodulation of Virginia soy beans. A. T. Perkins. 1925. (N.J.-11)
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p. 263-281 Contribution to the chemistry of decomposition of proteins and amino acids by various groups of microorganisms. S. A. Waksman and S. Lomanitz. 1925. (N. J.-13)
- v. 30, no. 5
p. 451-462 The effect of sulphur and gypsum on the fertility elements of Palouse silt loam. L. W. Erdman. 1925. (Wash.-3)
- v. 30, no. 9
p. 819-831 The soil mulch in the absorption and retention of moisture. M. A. McCall. 1925. (Wash.-5)
- v. 30, no. 10
p. 937-947. The relation of sulphur to alfalfa production. O. C. Bruce. 1925. (Kans.-45)
- v. 30, no. 12
p. 1095-1132 Effects of crops on the yields of succeeding crops in the rotation, with special reference to tobacco. W. W. Garner, W. M. Lunn, and D. E. Brown. 1925. (G-494)
- v. 31, no. 3
p. 247-260 Colloidal silica and the efficiency of phosphates. P. L. Gile and J. G. Smith. 1925. (H-11)
- v. 31, no. 4
p. 301-363 Steam and chemical soil disinfection with special reference to potato wart. N. R. Hunt, F. G. O'Donnell and R. P. Marshall. 1925. (O-4)
- v. 31, no. 6
p. 501-517 Plate counts of soil microorganisms. N. R. Smith and S. Worden. 1925. (G-492)
- v. 31, no. 6
p. 549-553 The ammonia content of soil, and its relation to total nitrogen, nitrates, and soil reaction. H. J. Harper. 1925. (Iowa-9)
- v. 31, no. 9
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- v. 32, no. 12
p. 1153-1160 Influence of soil temperature and soil moisture on the infection of sweet potatoes by the black-rot fungus.
L. L. Harter and W. A. Whitney. 1926. (G-523)
- v. 33, no. 1
p. 1-8 Experiments with certain arsenates as soil insecticides.
B. R. Leach. 1926. (K-168)
- v. 33, no. 1
p. 17-20 A homogeneous carbon disulphide emulsion. W. E. Fleming.
1926. (K-171)
- v. 33, no. 1
p. 77-99 Decomposition of organic matter in soil. H. H. Hill.
1926. (Va.(Blacksburg)-4)
- v. 33, no. 3
p. 255-268 A study of soil heterogeneity in experiment plots. R. J.
Garber, T. C. McIlvaine, and M. M. Hoover. 1926. (Va.-2)
- v. 33, no. 10
p. 971-992 The influence of soil temperature and soil moisture on the development of yellows in cabbage seedlings. E. C. Tims.
1926. (Wis.-3)

UNITED STATES DEPARTMENT OF AGRICULTURE

Yearbook Articles

The Yearbook was begun in 1894. It contains articles and statistical matter contributed by the various bureaus, divisions and offices of the Department. Most of the articles in the Yearbook are reprinted in separate form. Following is a list of those which relate to soils.

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|------------------|---|
| 1894, p. 129-164 | Soils in their relation to crop production. Milton Whitney. (Y.B. Sep. 5) |
| 1894, p. 177-192 | Mineral phosphates as fertilizers. H. W. Wiley. (Y. B. Sep. 7) |
| 1894, p. 193-202 | Fertilization of the soil as affecting the orange in health and disease. H. J. Webber. (Y. B. Sep. 8) |
| 1894, p. 421-436 | Grasses as sand and soil binders. F. L. Scribner. (Y. B. Sep. 20) |
| 1895, p. 69-102 | Soil ferments important in agriculture. H. W. Wiley. (Y. B. Sep. 35, pt. 1) |
| 1895, p. 103-122 | Origin, value, and reclamation of alkali lands. E. W. Hilgard. (Y. B. Sep. 35, pt. 2) |
| 1895, p. 123-130 | Reasons for cultivating the soil. Milton Whitney. (Y. B. Sep. 35, pt. 3) |
| 1895, p. 131-142 | Humus in its relation to soil fertility. Harry Snyder. (Y. B. Sep. 35, pt. 4) |
| 1895, p. 475-486 | Climate, soil characteristics, and irrigation methods of California. C. W. Irish. (Y. B. Sep. 46) |
| 1895, p. 556-557 | Texture of some typical soils. |
| 1896, p. 107-136 | Potash and its function in agriculture. H. W. Wiley. (Y. B. Sep. 71) |
| 1896, p. 602-603 | Texture of some typical soils. |
| 1897, p. 122-135 | Division of soils. Milton Whitney. (Y. B. Sep. 119) |
| 1897, p. 429-440 | Some interesting soil problems. Milton Whitney. (Y. B. Sep. 120) |
| 1897, p. 684-686 | Effect upon soil of growing various crops. |
| 1897, p. 686-689 | Restoration of fertility of soil. |
| 1898, p. 399-404 | The movement and retention of water in soils. L. J. Briggs. (Y. B. Sep. 152) |

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Yearbook Articles (cont'd)

- 1898, p. 405-420 Sand-binding grasses. F. L. Scribner. (Y. B. Sep. 127)
- 1898, p. 495-504 The soluble mineral matter of soils. T. H. Means.
(Y. B. Sep. 153)
- 1899, p. 335-346 Soil investigations in the United States. Milton Whitney.
(Y. B. Sep. 169)
- 1898, p. 535-550 Forage plants for cultivation on alkali soil.
J. G. Smith. (Y. B. Sep. 129)
- 1898, p. 652-654 Notes on soil moisture in 1898.
- 1899, p. 429-440 Growth of the tobacco industry. Milton Whitney and M. L.
Floyd. (Y. B. Sep. 128)
- 1900, p. 397-410 Objects and methods of investigating certain physical
properties of soils. L. J. Briggs. (Y. B. Sep. 216)
- 1901, p. 117-132 The purpose of a soil survey. Milton Whitney. (Y. B. Sep.
232)
- 1902, p. 333-342 Bacteria and the nitrogen problem. G. T. Moore.
(Y. B. Sep. 277)
- 1902, p. 519-532 Practices in crop rotation. G. K. Holmes. (Y. B. Sep. 289)
- 1902, p. 553-572 Fertilizers for special crops. A. F. Woods and R. E. B.
McKenney. (Y. B. Sep. 290)
- 1902, p. 573-588 Crops used in the reclamation of alkali lands in Egypt.
T. H. Kearney and T. H. Means. (Y. B. Sep. 291)
- 1903, p. 159-174 Some results of investigations in soil management.
F. H. King. (Y. B. Sep. 311)
- 1903, p. 441-452 Some soil problems for practical farmers. E. C. Chilcott.
(Y. B. Sep. 306)
- 1905, p. 219-230 Dark fire-cured tobacco of Virginia and the possibilities
for its improvement. G. T. McNess, and E. H. Mathewson.
(Y. B. Sep. 378)
- 1906, p. 125-136 The present status of the nitrogen problem. A. F. Woods,
(Y. B. Sep. 411)
- 1906, p. 181-188 The use of soil surveys. J. A. Bonsteel. (Y. B. Sep. 415)
- 1908, p. 465-472 Soil mulches for checking evaporation. Samuel Fortier.
(Y. B. Sep. 495)

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Yearbook Articles (cont'd)

- 1909, p. 219-226 The functions and value of soil bacteria. K. F. Kellerman.
(Y. B. Sep. 507)
- 1910, p. 169-176 The agricultural duty of water. W J McGee. (Y.B. Sep.526)
- 1910, p. 213-218 Nitrogen-gathering plants. K. F. Kellerman. (Y.B.Sep.530)
- 1911, p. 223-236 Important American soils. J. A. Bonsteel. (Y. B. Sep.563)
- 1911, p. 479-490 Subsoil water of central United States. W J McGee.
(Y. B. Sep. 585)
- 1912, p. 417-432 Truck soils of the Atlantic coast region. J. A. Bonsteel.
(Y. B. Sep. 603)
- 1912, p. 523-536 Possible sources of potash in the United States. F. K.
Cameron. (Y. B. Sep. 611)
- 1913, p. 207-220 Economic waste from soil erosion. R.O.E. Davis. (Y. B.
Sep. 624)
- 1914, p. 295-310 The preparation of fertilizer from municipal waste.
J. W. Turrentine. (Y. B. Sep. 643)
- 1916, p. 107-134 Farms, forests, and erosion. S. T. Dana. (Y.B. Sep.688)
- 1916, p. 301-310 Importance of developing our natural resources of potash.
F. W. Brown. (Y. B. Sep. 717)
- 1916, p. 375-379 The stable-manure business of big cities. C. C. Fletcher.
(Y. B. Sep. 716)
- 1917, p. 139-146 The sources of our nitrogenous fertilizers. F. W. Brown.
(Y. B. Sep. 729)
- 1917, p. 177-183 Phosphate rock our greatest fertilizer asset. W. H.
Waggaman. (Y. B. Sep. 730)
- 1917, p. 253-263 Fertilizers from industrial wastes. W. H. Ross. (Y. B.
Sep. 728)
- 1917, p. 283-288 Conservation of fertilizer materials from minor sources.
C. C. Fletcher. (Y. B. Sep. 733)
- 1918, p. 185-190 Home mixing of fertilizers. C. C. Fletcher. (Y. B. Sep.780)
- 1918, p. 433-441 Arable land in the United States. O. E. Baker and H. M.
Strong. (Y. B. Sep. 771)
- 1919, p. 115-121 Atmospheric nitrogen for fertilizers. R.O.E. Davis.
(Y. B. Sep. 803)

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| 1919, p. 335-341 | Home production of lime by the farmer. C. C. Fletcher.
(Y. B. Sep. 814) |
| 1920, p. 217-224 | Phosphorus in fertilizer. W. H. Waggaman. (Y. B. Sep. 840) |
| 1920, p. 363-376 | Getting our potash. W. H. Ross. (Y. B. Sep. 851) |
| 1920, p. 413-419 | Uses of the soil survey. C. H. Seaton. (Y. B. Sep. 854) |

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Bureau of Chemistry

The Division of Chemistry was established in 1862. Name became Bureau of Chemistry, July 1, 1901.

Bulletins

- 10 Principles and methods of soil analysis. Edgar Richards.
66 p. 1886.
- 31 p.116-117 Report on soil analysis. R. C. Kedzie. 1891.
- 31 p.233-241 Methods for soil analysis. 1891.
- 35 p.93-98 Report on soils and ash. H. H. Harrington. 1892.
p.105-108
- 35 p.108-113 Soil sampling apparatus. M. Whitney. 1892.
- 35 p.225-232 Soil and ash analysis. Provisional methods for the years
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- 38 p.60-82 Report on the methods of physical and chemical soil analysis.
E. W. Hilgard. 1893.
- 38 p.84-92 Modification of Grandeau's method for the determination of
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- 38 p.200-207 Soil and soil analysis. Provisional methods for the years
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- 43 p.28-52 Report on soil and ash. A. M. Peter. 1894.
- 43 p.53-58 On the action of oxalic acid upon phosphates, silicates, and
soil. J. H. Kastle, P. Marvin, and J. C. Calvert. 1894.
- 43 p.58-64 Method for the determination of phosphoric acid in soils.
Arthur Goss. 1894.
- 43 p.65-66 A note on the direct determination of potash in the soil solution
A. M. Peter. 1894.
- 43 p.246-254 Report of the committee on abstracts; soil analysis. William
Frear and others. 1894.
- 43 p.386-391 Methods for soil and ash analysis. 1894.
- 47 p.30-45 Report on soils and ash. A. M. Peter, and Arthur Goss.
1896.
- 47 p.45-48 On the necessity of tests for acidity on upland or naturally
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- 47 p.48-49 Determination of the total insoluble matter, phosphoric acid, lime, and potash in soils. Harry Snyder. 1896.
- 47 p.50-57 Concerning the determination of phosphoric acid and potash in soils. Arthur Goss. 1896.
- 47 p.58-60 Recognition of "nitrogen hungriness" in soils. E. W. Hilgard. 1896.
- 49 p.80-91 Report on soils and ash. Arthur Goss, and W. G. Brown. 1897.
- 51 p.73-83 Report on soils and ash. Arthur Goss and Harry Snyder. 1898.
- 51 p.84-87 Objects and methods of soil analysis. E. W. Hilgard. 1898.
- 55 The fertilizing value of street sweepings. E.E. Ewell. 19 p. 1898.
- 56 p.49-56 Report on soils and ash. Harry Snyder. 1899.
- 56 p.58-60 Problems in soil investigations. Harry Snyder. 1899.
- 56 p.60-63 Danger of drawing erroneous conclusions from plant soil tests. H. J. Wheeler. 1899.
- 56 p.63-64 Estimation of the lime, potash, and phosphoric acid in Hawaiian soils probably available for the immediate crop. Walter Maxwell. 1899.
- 56 p.64-66 A plea for a scientific basis for the division of soil particles in mechanical analysis. C. G. Hopkins. 1899.
- 56 p.67-69 A rapid method of mechanical soil analysis, including the use of centrifugal force. C. G. Hopkins. 1899.
- 57 p.74-90 Report on soils and ash. B. L. Hartwell. 1899.
- 62 p.60-70 Report on soils. B. L. Hartwell. 1901.
- 62 p.73-88 A pot experiment to test field observations concerning soil deficiencies. B. L. Hartwell. 1901.
- 67 p.28-36 Report on soils. M. E. Jaffa. 1902.
- 67 p.36-41 Nitrification of ammonium sulphate and cotton-seed meal in different soils. W. A. Withers, and G. S. Fraps. 1902.
- 67 p.43 Separation of alkalies in soil analysis by the official method. C. G. Hopkins. 1902.

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- 67 p.152-154 Method for taking samples of soils for analysis. C. G. Hopkins. 1902.
- 73 p.101-113 Report on soils. F. P. Veitch. 1903.
- 73 p.114-119 A quantitative method for determining the acidity of soils. C. G. Hopkins, W. H. Knox, and J. H. Pettit. 1903.
- 73 p.121-135 Studies in nitrification. G. S. Fraps. 1903.
- 74 The influence of soil and climate upon the composition of the sugar beet. H. W. Wiley. 42 p. 1903.
- 81 p.134-146 Report on soils. F. P. Veitch. 1904.
- 81 p.146-160 The fixation of atmospheric nitrogen by bacteria. J. G. Lipman. 1904.
- 81 p.163-168 Comparison of the volumetric and gravimetric methods in determining total phosphoric acid in soils. C. B. Williams. 1904.
- 90 p.170-179 Report on soils. C. G. Hopkins. 1905.
- 90 p.179-183 Nitrification and soil deficiencies. G. S. Fraps. 1905.
- 90 p.183-187 Summary of experiments on the relation of soil acidity to fertility. F. P. Veitch. 1905.
- 99 p.111-114 A modified method for the determination of total phosphorus in soils. J. H. Pettit and A. Ystgard. 1906.
- 99 p.115-116 On the proper strength of acid to be used for determining available plant food in soils. A. M. Peter and S. D. Averitt. 1906.
- 99 p.117-118 The phosphoric acid removed by crops by dilute nitric acid and by ammonium hydroxid from a limed and an unlimed soil receiving various phosphates. B. L. Hartwell and J. W. Kellogg. 1906.
- 99 p.118-122 Plant growth as influenced by soil acidity. F. P. Veitch. 1906.
- 105 p.142-147 Report on soils. J. H. Pettit. 1907.
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- 116 p.95-96 The phosphoric acid of the soil. G. S. Fraps. 1908.

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- 122 p.114-120 Report on soils. S. D. Averitt. 1909.
- 122 p.120-121 Report on the determination of calcium carbonate in soils.
J. G. Lipman. 1909.
- 132 p.25-30 Report on soils. S. D. Averitt. 1910.
- 132 p.30-32 Report on the determination of carbonates in soils. J. G.
Lipman. 1910.
- 132 p.33-34 Interpretation of soil analyses with respect to phosphoric
acid. G. S. Fraps. 1910.
- 132 p.34-38 Methods for the determination of the nitrifying and ammonifying
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- 132 p.38-42 A rapid method for the determination of total potassium in
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- 137 p.25-30 Report on soils. J. G. Lipman. 1911.
- 149 Growth of wheat seedlings as affected by acid or alkaline
conditions. J. F. Breazeale. 18 p. 1912.
- 152 p.50-56 Report on soils. I. Bacteriological methods for the estimation
of soil acidity. II. Report on humus. J. G. Lipman and
G. S. Fraps. 1912.
- 152 p.56-59 Determination of carbon dioxide in soils. L. T. Bowser.
1912.
- 162 p.22-25 Report on soils. G. S. Fraps. 1913.

UNITED STATES DEPARTMENT OF AGRICULTURE

Office of Experiment Stations

Established in 1888. On July 1, 1915, the States Relations Service was established and the Office of Experiment Stations was transferred to it as one of its branches. Upon the discontinuance of the States Relations Service, July 1, 1923, the Office of Experiment Stations was placed under the Office of the Secretary.

Bulletins

- 7, p.91 Soil features that should be recognized in all plat work.
 Milton Whitney. 1892.
- 8 Six lectures on the investigation at Rothamsted Experimental
 Station delivered ... before the Association of American
 agricultural colleges and experiment stations ... 1891.
 Robert Warington. 113 p. 1892.
- 16, p.156-162 Physical tests of soils. R. H. Loughridge. 1893.
- 18 A contribution to the investigation of the assimilation of
 free atmospheric nitrogen by white and black mustard.
 J. P. Lotsy. 19 p. 1894.
- 22 Agricultural investigations at Rothamsted, England, during
 a period of fifty years. Six lectures delivered under
 the provisions of the Lawes agricultural trust ... under
 auspices of the Association of American agricultural col-
 leges and experiment stations, in November, 1893.
 Sir J. H. Gilbert. 316 p. 1895.
- 30, p.66-73 Distribution of salts in alkali soils. E. W. Hilgard. 1896.
- 30, p.88-93 Late progress in soil analysis. E. W. Hilgard. 1896.
- 33, p.143-168 Climatology and soils [or the cotton plant]. Milton Whitney.
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- 33, p.169-196 The manuring of cotton. H. C. White. 1896.
- 76, p.66-69 Alkali soils. R. H. Loughridge. 1900.
- 76, p.69-71 Recent investigations by the Wyoming experiment station in
 alkali and irrigation. B. C. Buffum. 1900.
- 76, p.72-74 Alkali in Montana. F. W. Traphagen. 1900.
- 104, p.293-324 Progress report on silt measurements. J. C. Nagle. 1902.

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Office of Experiment Stations Bulletins (cont'd)

- 106 Results of investigations on the Rothamsted soils, being the lectures delivered under the provisions of the Lawes agricultural trust ... before the Association of American agricultural colleges and experiment stations at New Haven and Middletown, Conn., in November, 1900. Bernard Dyer. 180 p. 1902.
- 115, p.73-75 Artificial plant food requirements of soils. B.W.Kilgore. 1902.
- 115, p.87-88 Nitrification as an element of soil productiveness. W. A. Withers. 1902.
- 119, p.365-392 Second progress report on silt measurements. J. C. Nagle. 1902.
- 133, p.196-217 Third progress report on discharge and silt measurements on Texas streams. J. C. Nagle. 1903.
- 142, p.95-104 The present status of soil investigation. C. G. Hopkins. 1904.
- 142, p.104-111 Differences between four southern and four northern soils and improvements in soil management which these differences suggest. F. H. King. 1904.
- 142, p.111-117 Extension and practical application of soil surveys. Milton Whitney. 1904.
- 142, p.117-121 Chemistry of soils as related to crop production. Bureau of soils bulletin no. 22. E. W. Hilgard. 1904.
- 142, p.121-123 Utility of soil surveys in the west. R. H. Forbes. 1904.
- 142, p.127-133 Methods of conducting investigations relating to maintenance or increase of soil fertility. C. E. Thorne. 1904.
- 142, p.133-138 Methods of conducting investigations relating to the maintenance or increase of soil fertility. E. B. Voorhees. 1904.
- 142, p.142-146 Soil fertility. H. W. Wiley. 1904.
- 164, p.134-148 Soil fertility in relation to permanent agriculture with discussion. C. G. Hopkins. 1906.
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- 71 Soil inoculation for legumes; with reports upon the successful use of artificial cultures by practical farmers. G. T. Moore.. 72 p. 1905.
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- 79 The variability of wheat varieties in resistance to toxic salts. L. L. Harter. 48 p. 1905.
- 80 Agricultural explorations in Algeria. T. H. Kearney and T. H. Means. 98 p. 1905.
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- 113 The comparative tolerance of various plants for the salts common in alkali soils. T. H. Kearney, and L. L. Harter. 22 p. 1907.
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UNITED STATES DEPARTMENT OF AGRICULTURE

Bureau of Soils

Established as "Division of Agricultural Soils" in the Weather Bureau in 1894. Became an independent division of the Department July 1, 1895. Name changed to Division of Soils in 1897, and to Bureau of Soils July 1, 1901.

General Publications

Report of the chief, 1894-1926. From Annual reports, Department of agriculture.

Field operations of the Bureau of soils, 1889-1920. 1900-1925.

These consist of reports on the soil surveys of the year covered, with accompanying maps. In addition to the descriptions of the soils of the section, a short history is given of the settlement of the district, its state of agricultural development, the class of people inhabiting the section, and what crops can be raised most profitably.

The surveys are also issued separately.

Instructions to field parties and descriptions of soil types. Field season, 1904. 198 p. 1904.

Soil survey field book. Field season 1906. 319 p. 1906.

Descriptions of soil types established and changes in classification since the publication of Bulletin 78. 28 p. 1911.

Fertilizer resources of the United States. 290 p. 1912. (62d Congress, 2d session. Senate Doc. 190)

Instructions to field parties. 124 p. 1914.

Fertilizer situation in the United States. 6 p. 1916. (64th Congress, 1st session. Senate Doc. 262)

Important soils of the United States. Issued to accompany a collection of soils and subsoils (in 13 boxes) for use of schools and colleges teaching agriculture and physical geography. 28 p. 1916.

Phosphate rock in the manufacture of fertilizers. 7 p. 1918. (65th Congress, 2d session. Senate Doc. 270)

Service and regulatory announcements. no. 1. 1919.

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- 2 _____ June, 1895. 16 p. 1895.
- 3 _____ July, 1895. 23 p. 1895.
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- 6 An electrical method of determining the moisture content of arable soils. Milton Whitney, F. D. Gardner, and L. J. Briggs. 26 p. 1897.
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- 14 The alkali soils of the Yellowstone Valley from a preliminary investigation of the soils near Billings, Montana. Milton Whitney and T. H. Means. 39 p. 1898.
- 15 Electrical instruments for determining the moisture, temperature, and soluble salt content of soils. L. J. Briggs. 35 p. 1899.
- 16 Catalogue of the first four thousand samples in the soil collection of the Division of soils. Milton Whitney. 145 p. 1899.

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- 18 Solution studies of salts occurring in alkali soils. F. K. Cameron, L. J. Briggs, and Atherton Seidell. 89 p. 1901.
- 19 Capillary studies and filtration of clay from soil solutions. L. J. Briggs, and M. H. Lapham. 40 p. 1902.
- 20 Growing Sumatra tobacco under shade in the Connecticut Valley. Milton Whitney. 31 p. 1902.
- 21 Reclamation of alkali lands in Egypt. As adapted to similar work in the United States. T. H. Means. 48 p. 1903.
- 22 The chemistry of the soil as related to crop production. Milton Whitney and F. K. Cameron. 71 p. 1903.
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- 39 Effects of shading on soil conditions. J. B. Stewart. 19 p. 1907.
- 40 Some factors influencing soil fertility. Oswald Schreiner and H. S. Reed. 40 p. 1907.
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- 42 Reclamation of white-ash lands affected with alkali at Fresno, California. W. W. Mackie. 47 p. 1907.
- 43 Reclamation of alkali land in Salt Lake Valley, Utah. C. W. Dorsey. 28 p. 1907.
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- 45 The moisture equivalent of soils. L. J. Briggs and J. W. McLane. 23 p. 1907.
- 46 Improvement of Virginia fire-cured tobacco. G. T. McNess, E. H. Mathewson and B. G. Anderson. 40 p. 1907.
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- 70 Some effects of a harmful organic soil constituent. Oswald Schreiner and J. J. Skinner. 98 p. 1910.
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- 81 A report on the natural phosphates of Tennessee, Kentucky, and Arkansas. W. H. Waggaman. 36 p. 1912.
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- 91 The microscopic determination of soil-forming minerals. W. J. McCaughey and W. H. Fry. 100 p. 1913.
- 92 Wells and subsoil water. W J McGee. 185 p. 1913.
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- 18 The wire-basket method for determining the manurial requirements of soils. F. D. Gardner. 6 p. 1905.
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- 29 Soils of the eastern United States and their use--VII. The Hagerstown loam. J. A. Bonsteel. 18 p. 1911.
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- 31 Soils of the eastern United States and their use--IX. The Miami clay loam. J. A. Bonsteel. 17 p. 1911.
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- 36 Soils of the eastern United States and their use--XIV. The Fargo clay loam. J. A. Bonsteel. 16 p. 1911.
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- 42 Soils of the eastern United States and their use--XX. The Trinity clay. J. A. Bonsteel. 14 p. 1911.
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